

# EUROPEAN PATENT OFFICE

## Patent Abstracts of Japan

PUBLICATION NUMBER : 11284233  
PUBLICATION DATE : 15-10-99

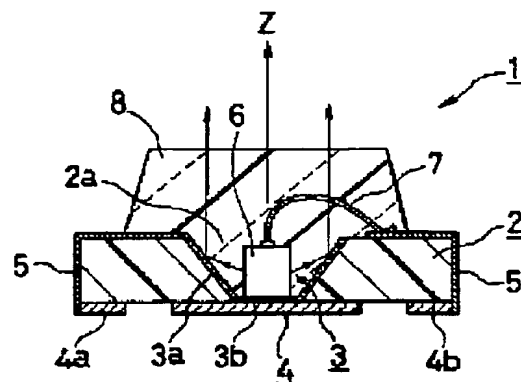
APPLICATION DATE : 27-03-98  
APPLICATION NUMBER : 10082206

APPLICANT : STANLEY ELECTRIC CO LTD;

INVENTOR : NOMURA TADASHI;

INT.CL. : H01L 33/00

TITLE : FLAT MOUNTING TYPE LED ELEMENT



ABSTRACT : PROBLEM TO BE SOLVED: To suppress the temperature rise of a flat mounting type LED element by improving the luminous flux utilization factor of the element.

SOLUTION: Since the horn section 3 of a flat mounting type LED element 1 is formed of a reflecting surface 3a constituted of a tapered through hole 2a having an expanded top and a bottom face 3b constituted of copper foil 4 stuck top the lower surface of a resin substrate 2, the luminous flux utilization factor of the LED element is improved by changing the direction of light toward the lateral direction from the LED chip 6 to a lighting direction Z by means of the reflecting surface 3a of the tapered horn section 3 having the expanded top. Since the bottom face 3b of the horn section 3 is constituted of the copper foil 4, in addition, the cooling efficiency of the LED element is improved and the temperature rise of the element is suppressed.

COPYRIGHT: (C)1999,JPO